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(9) Puff, H.

TITLE:

(6) On the theory of secondary electron emission from metals on a free electron model

PERIODICAL:

(13) *Trans. fur* Physica status solidi, v. 2, no. 12, 1962, 1699-1712

TEXT: The quantum theory of the secondary electron emission from metals, based on a free electron model, has already been considered previously. It is now reexamined taking into account the influence of the back-scattered primary electrons. The excitation process is discussed and the Streitwolf excitation function is deduced. The secondary yield was obtained without employing the approximation of the Streitwolf function used previously by Stolz; there are two objections to this: i) the approximation allows also the emission of those electrons not deflected by collision and, ii) it does not specify the direction of the primary electrons. Results of exact calculation show a considerable decrease of the yield. Calculation of absolute values of yield is difficult because

Card 1/2

On the theory ...

G/030/62/002/012/003/006  
D230/D308

a) the mean free path  $l_0$  is not exactly known and, b) the few experimental results obtained by Woods on sodium refer to a narrow region of primary energy around the yield maximum and thus, are outside the present theory. The results show that, by comparison with the measured yield, the calculated secondary yield may be neglected. The latter amounts to only about 10% when the excitation of the back-scattering electrons is taken into account. There are 6 figures. The most important English-language references read as follows: H. Kanter, Phys. Rec., v. 121, 681 (1961); J. Woods, Proc. Phys. Soc., B67, 843 (1954).

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Card 2/2

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